

CLAIMS

What is claimed is:

1 1. A video-on-demand (VOD) system, comprising:
2 a transmission channel;
3 a plurality of receivers coupled to the transmission channel, a VOD client at
4 each receiver capable of subscribing to one or more VOD sessions over a transport
5 stream; and
6 a headend coupled to the transmission channel, said headend including a video
7 server than can transmit one or more VOD sessions to one or more receivers, and a
8 control server coupled to the video server, the control server to dynamically allocate
9 and terminate VOD sessions over the transport stream as VOD clients are added and
10 terminated, and, if necessary, to cause the video server to transmit one or more
11 dummy sessions over the transport stream to maintain a predetermined minimum
12 bandwidth of content over the transport stream.

1 2. The VOD system of claim 1, wherein the control server to prevent each
2 receiver from decoding the dummy sessions.

1 3. The VOD system of claim 1, wherein the control server, if necessary, to
2 transmit one or more dummy sessions over the transport stream to maintain a
3 minimum bandwidth of content over the transport stream to ensure that each receiver
4 can synchronize to a subscribed VOD session.

Attorney's Office

1 4. The VOD system of claim 1, wherein the control server to determine
2 whether the bandwidth of content over the transport stream is below a predetermined
3 threshold, and to cause the video server to transmit one or more dummy sessions, as
4 necessary, to maintain the bandwidth of content at or above the predetermined
5 threshold.

1 5. The VOD system of claim 1 wherein each receiver includes a
2 demodulator, decoder, and an MPEG frame synchronizer.

1 6. The VOD system of claim 1 wherein said headend includes a transmitter
2 having an MPEG frame synchronizer, encoder, and modulator.

1 7. The VOD system of claim 1 wherein the transport stream is transmitted
2 over a radio frequency channel.

1 8. The VOD system of claim 1 wherein the video server can transmit one
2 or more VOD sessions over one or more radio frequency (RF) channels each
3 associated with a transport stream, and wherein said control server, if necessary, to
4 cause the video server to transmit one or more dummy sessions over each transport
5 stream, as necessary, to maintain a predetermined minimum bandwidth of content
6 over each of the one or more transport streams.

1 9. The VOD system of claim 1 wherein when the control server receives a
2 request for a new VOD session from a VOD client, the control server terminates one
3 or more of the one or more dummy sessions, and causes transmission of the new VOD
4 session over the transport stream.

1 10. A video-on-demand (VOD) server, comprising:
2 a server that receives requests from one or more VOD clients for one or more
3 VOD sessions, causes transmission of one or more VOD sessions over a transport
4 stream to the one or more VOD clients, determines whether the number of VOD
5 sessions transmitted over the transport stream is below a minimum threshold, and
6 causes transmission of one or more padding sessions over the transport stream if the
7 number of VOD sessions transmitted over the transport stream is below the minimum
8 threshold to maintain the number of VOD sessions at or above the minimum
9 threshold.

1 11. The VOD server of claim 10 wherein the server causes transmission of
2 VOD sessions over a plurality of radio frequency channels each associated with a
3 transport stream, the server determines, for each transport stream, whether the number
4 of VOD sessions is below the minimum threshold, and, for each transport stream,
5 causes transmission of one or more padding sessions if the number of VOD sessions
6 transmitted over the respective transport stream is below the minimum threshold to
7 maintain the number of VOD sessions at or above the minimum threshold.

1 12. The VOD server of claim 10 wherein when the server receives a request
2 for a new VOD session from a VOD client, the control server terminates one or more
3 of the one or more padding sessions, and causes transmission of the new VOD
4 session.

1 13. A video-on-demand (VOD) system, comprising:
2 a transmission channel;
3 a plurality of receivers coupled to the transmission channel, a VOD client at
4 each receiver capable of subscribing to one or more VOD sessions over a transport
5 stream; and
6 a headend coupled to the transmission channel, said headend including a video
7 server than can transmit one or more VOD sessions to one or more receivers, and a
8 control server coupled to the video server, the control server to dynamically allocate
9 and terminate VOD sessions over the transport stream as VOD clients are added and
10 terminated, said headend to transmit one or more stuffing packets, as necessary, to
11 maintain a constant bit rate over the transport stream, said one or more stuffing
12 packets including a randomized payload.

1 14. The VOD system of claim 13 wherein the headend generates the one or
2 more randomized payloads using one of a random number generator, pseudo-random
3 number generator, and predetermined static payload.

1 15. The VOD system of claim 13 wherein the video server can transmit one
2 or more VOD sessions over one or more radio frequency (RF) channels each

3 associated with a transport stream, and wherein said headend to transmit one or more
4 stuffing packets for each transport stream, as necessary, to maintain the constant bit
5 rate over the one or more transport streams, said one or more stuffing packets
6 including a randomized payload.

1 16. The VOD system of claim 15 wherein the headend includes a random
2 number generator that generates a plurality of random numbers, said plurality of
3 random numbers being used to fill the payloads of the one or more stuffing packets.

1 17. A video on demand (VOD) method, comprising:
2 receiving requests from one or more VOD clients for one or more VOD
3 sessions;
4 transmitting one or more VOD sessions to the one or more VOD clients over a
5 transport stream having a constant bit rate; and
6 transmitting one or more null packets, as necessary, to maintain the constant bit
7 rate over the transport stream, said null packets including a randomized payload.

1 18. The VOD method of claim 17, wherein transmitting one or more null
2 packets comprises transmitting one or more null packets, as necessary, to maintain the
3 constant bit rate over the transport stream, said null packets each including a
4 randomized payload populated using one of a pseudo-random number generator,
5 random number generator, and one of a plurality of predetermined static payloads.

1 19. The VOD method of claim 17, further comprising dynamically
2 allocating and terminating VOD sessions over the transport stream as VOD clients are
3 added and terminated, respectively.

1 20. A digital video system, comprising:
2 a transmission channel;
3 a plurality of receivers coupled to the transmission channel, a client at each
4 receiver capable of subscribing to one or more video sessions over a transport stream;
5 and
6 a headend coupled to the transmission channel, said headend including a video
7 server than can transmit one or more video sessions to one or more receivers, and a
8 control server coupled to the video server, the control server to cause the video server
9 to transmit one or more dummy sessions over the transport stream to maintain a
10 predetermined minimum bandwidth of content over the transport stream.

1 21. The digital video system of claim 20, wherein the control server to
2 determine whether the bandwidth of content over the transport stream is below a
3 predetermined threshold, and to cause the video server to transmit one or more
4 dummy sessions, as necessary, to maintain the bandwidth of content at or above the
5 predetermined threshold.

1 22. The digital video system of claim 20, wherein the headend transmits
2 digital video programming in accordance to one of a digital broadcast satellite (DBS)

3 system, digital cable system, high definition television (HDTV) system, and video-on-
4 demand (VOD) system.

1 23. A computer program product, comprising:
2 a computer usable medium having computer readable program code embodied
3 therein to minimize a possibility of an erroneous MPEG frame synchronization in a
4 digital video receiver, the computer readable program code in said computer program
5 product comprising:

6 first computer readable program code to transmit one or more video sessions to
7 the one or more clients over a transport stream having a constant bit rate; and

8 second computer readable program code to transmit one or more null packets,
9 as necessary, to maintain the constant bit rate over the transport stream, said null
10 packets including a randomized payload.

1 24. The computer program product of claim 23, wherein the first computer
2 readable program code comprises first computer readable program code to transmit
3 one or more video sessions in accordance to one of a digital broadcast satellite (DBS)
4 system, digital cable system, high definition television (HDTV) system, and video-on-
5 demand (VOD) system.

1 25. A digital video receiver, comprising:
2 a demodulator to demodulate analog signals received over a transmission
3 channel;
4 a decoder to decode signals from the demodulator;

5 an MPEG framer to synchronize to a video session in a transport stream;
6 a memory including one or more instructions;
7 a processor, coupled to the memory, demodulator, decoder, and framer, the
8 processor, in response to the one or more instructions, to,
9 detect a checksum error from the MPEG framer indicative of a false
10 synchronization to the video session, and
11 responsive to detecting a checksum error, resynchronize the MPEG
12 framer to the transport stream.

Patent Application